

4.7 WATER RESOURCES

This section discusses the potential impacts of the proposed Tucson Electric Power Company (TEP) Sahuarita-Nogales Transmission Line project to water resources in the project area for each alternative. The discussion is divided into potential impacts to surface water and groundwater.

4.7.1 Floodplains, Wetlands, and Surface Water

The following discussion of floodplains and wetlands applies to all three proposed corridors. Information specific to surface water impacts and floodplains and wetlands impacts in the Western, Central, and Crossover Corridors is presented separately following the general discussion.

As the proposed location for the transmission line structures for any of the three alternatives is over 400 ft (122 m) from the U.S.-Mexico border, surface drainage would not be affected and no increase in volume, peak runoff, or flow, in either direction across the border would occur from the proposed construction.

Floodplains and Wetlands. A Floodplains and Wetlands Assessment, per Title 10, *Code of Federal Regulations* (CFR), Part 1022, *Compliance with Floodplain/Wetlands Environmental Review Requirements*, has been conducted for the proposed project and is included in Appendix C of this Draft Environmental Impact Statement (EIS). A summary of potential impacts and mitigation follows; refer to Appendix C for more information.

The following discussion evaluates the potential impacts of each alternative to floodplains in the project area. No wetlands were found in the proposed corridors during field surveys and none have been identified by U.S. Department of Agriculture Forest Service (USFS) (USFS 2003). There may be small areas of wetlands within the proposed corridors that are associated with manmade stock ponds and impoundments. TEP would site the transmission line to avoid such areas. Therefore, no wetlands would be impacted by the proposed project. The discussion of impacts to floodplains is organized by geographic area in order to take advantage of geographic overlap between the three corridor alternatives: Western, Crossover, and Central. These geographic areas are the North Segment, North Central Segment, South Central Segment, East-West Segment, and South Segment (labeled on Figure 3.7–3). Common to all three corridor alternatives are the North Segment and the South Segment.

The following sources were used to determine the 100-year floodplain: Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), county soil survey maps, and consultation with the USFS Coronado National Forest. The FIRM maps indicate that the following tributaries occurring in the project area could be part of the 100-year floodplain: Sopori, Toros, Diablo, Las Chivas, and Mariposa Canyon Wash (see Figure 3.7–3). Additional unmapped floodplains may also occur in the project area. In those areas where the regulatory floodplains have not been delineated, the county engineer may require the project proponent to establish the regulatory floodplain and floodway limits through a hydrologic and hydraulic study prepared by an Arizona registered professional civil engineer.

All three proposed corridors involve some construction in floodplains. The four activities that would be conducted in floodplains are pole placement, the construction of pole laydown areas, access roads, and the South Substation expansion (located in the North Segment of all three corridors). For the purposes of this assessment, the following assumptions were made regarding these potential impacts: (1) the impact of individual pole placement would be 25 ft² (2.3 m²) (see Table 4.1–1 for overall pole footprints); (2) pole laydown areas would each require about 1,850 ft² (172 m²); (3) access roads would be 12 ft (3.7 m) wide; and (4) the South Substation expansion would require 58,500 ft² (5,440 m²). Projected impacts to floodplains were based on maps provided by Electrical Consultants Inc. showing locations of poles, pole laydown areas, and access roads (ECI 2003).

As permanent structures in floodplains, the South Substation expansion and corridor access roads could directly impact floodplain functions and values by increasing flood elevation and frequency. An increase in flood elevation could result in an increase in downstream flood loss and a long-term negative impact on lives and property. Impacts resulting from pole placement and construction of laydown areas would be negligible. Neither activity would negatively impact flood elevation or flood frequency. Consequently, there would be no direct or long-term effects on floodplain values or lives and properties.

Table 4.7–1 shows the estimated area of each proposed corridor that could be in the 100-year floodplain (refer to Appendix C for additional details). The Western and Crossover Corridors would have the greatest potential impact on floodplains in the project area. For these two alternative corridor routes, total potential impact within the 100-year floodplain is estimated at about 1.97 acres (0.80 ha). The Central Corridor would have the least impact to the 100-year floodplain (an estimated 1.58 acres [0.64 ha]).

Table 4.7–1. Estimated Impacts to Floodplains by Alternative.

Segment	Western (acres)	Crossover (acres)	Central (acres)
North	1.34	1.34	1.34
North Central	0.54	0.54	0.15
South Central	0.00	0.00	0.00
East-West	-	0.00	-
South	0.09	0.09	0.09
TOTAL	1.97	1.97	1.58

“-” means corridor does not pass through this segment.

Impacts to floodplains would be avoided to the extent possible by siting access roads and pole laydown areas outside floodplains, and spanning floodplains where feasible. Impacts to floodplains resulting from the South Substation expansion would be unavoidable, however, because the South Substation was originally constructed in the 100-year floodplain, and the proposed project is designed to connect to the existing electrical grid at this location. In the case of Sopori Wash (see Figure 3.7–3), for any of the three corridors TEP would place one structure within the 100-year floodplain, though outside the normal flow line, as this wash is too wide to span across. The structure would be engineered to withstand a 100-year flood. In addition, for the Crossover Corridor an estimated two structures would be placed in the bottom of Peck Canyon, as described in Section 4.7.1.3.

TEP would be required to comply with Pima and Santa Cruz County floodplain protection standards. These standards require that all structures associated with the power line installation be flood-proofed or elevated at least 1 ft (0.3 m) above the base flood elevation. In the project area, this would apply to the South Substation expansion and corridor access roads that cross the floodplain. The support structures, though permanent structures, would not require any specific mitigation since they would not have an effect on flood elevations. Similarly, the pole laydown areas would not affect flood elevations because they would be temporary. Finally, obtaining a Floodplain Permit for this project would be contingent on concurrent acquisition of any *Clean Water Act* (CWA) Section 401 (state certification) and 402 (National Pollutant Discharge Elimination System) permits, if necessary.

Placement of roads within the floodplain can restrict transport of organic and inorganic materials, divert streamflow, and constrain natural channel migration. These factors can result in alteration or degradation of stream habitats, as well as physical damage to the landscape as a whole. Because the location and physical attributes of drainage channels are dynamic, appropriate placement of roads and other structures must account for movement of geomorphic (surface) features within the floodplain. Information regarding site-specific conditions on where proposed roads would approach floodplains would be used during the

design and construction of these roads in order to ensure that the design best protects the integrity of channel and floodplain dynamics. Although flash floods could occur in narrow washes, they would not be expected to impact the transmission towers, as the towers would be located to span across such washes.

Surface Water. The following discussion describes potential surface water impacts and mitigation for each of the three proposed corridors. Surface waters include the tributaries identified in the previous section (Floodplains and Wetlands) that could be part of the 100-year floodplain.

4.7.1.1 *Western Corridor*

The Western Corridor would cross numerous dry washes, many very small, and approximately 15 large washes, both within and outside of the Tumacacori Ecosystem Management Area (EMA) of the Coronado National Forest, including one minor drainage on Bureau of Land Management (BLM) land. Potential impacts to surface waterbodies would be from increased erosion and subsequent siltation due to construction activities around these areas. Although the exact placement of the structures has not yet been identified, TEP would span the surface water features and avoid placing structures adjacent to surface water features where feasible, except as noted previously for Sopori Wash.

Access roads to the proposed project, both for construction and ongoing maintenance, would traverse numerous washes, including approximately 134 drainages and washes on the Coronado National Forest along the Western Corridor. Proposed access roads would be designed in accordance with Best Management Practices (BMPs) (and USFS guidance on national forest lands) to minimize impacts to washes (URS 2003a). Potential effects related to stream crossings include increased sedimentation, changes in stream morphology including substrate composition, and changes in the ability of the stream to support vegetation and wildlife. Because drainage along the corridor is intermittent and the road use would also be intermittent, roads would generally not need culverts or bridges where they cross streams. Therefore, stream crossings should not interfere with material transport (wood, fine organic matter, sediment) in streams. The road system could create a potential for pollutants (primarily from motorized vehicles) to reach surface waters, when water flow occurs at stream crossings in locations where road drainage flows directly into a stream. However, as the stream network is intermittent, road-stream crossings are limited, and expected vehicle use is infrequent, the potential for pollutants to enter surface waters as a result of the proposed project is negligible. All construction equipment would be refueled no closer than 500 ft (150 m) from a wash or drainage (URS 2003a).

Road effects on the surface and subsurface hydrology of a given area include potential diversion and concentration of flow. Road design including water bars, rolling dips, and hardened crossings would be developed in coordination with the land owners and managers (for example, USFS, as part of the Special Use Permit process).

TEP is in consultation with USFS regarding development of BMPs for minimizing impacts on geologic, soil, and water resources from the proposed project on national forest lands, in accordance with the USFS “Soil and Water Conservation Practices Handbook” (FSH 2509.22, R-3 Transmittal, USFS 1990). Specific BMPs would be identified after coordination with Arizona Department of Environmental Quality (ADEQ) and before implementation of the project, to mitigate potential impacts for the entire length of the selected corridor. BMPs would include standard erosion control methods such as silt fencing and hay bales in areas where erosion into surface water drainages could occur.

Application of BMPs for road and tower construction, revegetation for roads not needed for ongoing maintenance, and spot repairs of existing roads would mitigate the potential for impacting USFS water resource parameters (see Section 3.7) on the Coronado National Forest.

4.7.1.2 *Central Corridor*

The potential impacts to surface water resources and mitigation discussed in Section 4.7.1.1 for the Western Corridor also generally apply for the Central Corridor. The Central Corridor would cross numerous dry washes, many very small, and approximately 14 large washes, both on and off the Coronado National Forest. On the Coronado National Forest, access roads to the proposed project, both for construction and ongoing maintenance would traverse numerous washes, including approximately 21 drainages and washes along the Central Corridor (URS 2003a).

Application of BMPs for road and tower construction, revegetation for roads not needed for ongoing maintenance, and spot repairs of existing roads would mitigate the potential for impacting USFS water resource parameters (see Section 3.7) on the Coronado National Forest.

4.7.1.3 *Crossover Corridor*

The potential impacts to surface water resources and mitigation discussed in Section 4.7.1.1 for the Western Corridor also generally apply for the Crossover Corridor. The Crossover Corridor would cross numerous dry washes, many very small, and approximately 14 large washes, both on and off the Coronado National Forest. Two proposed towers within the Peck Canyon segment would be located in the bottom of the wash due to the steep terrain of the area limiting potential structure base locations. The tower foundations and associated sediment deposition and streambed vegetation could disrupt channel hydraulics during flood debris flow events. This would force flow against the valley walls, potentially resulting in increased erosion. The probability of this occurring should be evaluated in more detail if the Crossover Corridor is selected for construction (URS 2003a). On the Coronado National Forest, access roads to the proposed project, both for construction and ongoing maintenance would traverse numerous washes, including approximately 86 drainages and washes along the Crossover Corridor (URS 2003a).

Application of BMPs for road and tower construction, revegetation for roads not needed for ongoing maintenance, and spot repairs of existing roads would mitigate the potential for impacting USFS water resource parameters (see Section 3.7) on the Coronado National Forest.

4.7.1.4 *No Action Alternative*

Under the No Action Alternative, TEP would not build the proposed transmission line and associated facilities as proposed in this EIS. Current water resource patterns would continue, as described in Section 3.7.1.

4.7.2 *Groundwater*

4.7.2.1 *Western Corridor*

During construction of the project, water would be required primarily for dust control. Groundwater may be used, with the specific water sources to be determined upon precise siting of the right-of-way (ROW). It is estimated that approximately 1 acre-ft would be used during the course of construction process. This water would be obtained from various sources and aquifers within the project area. Although the exact sources are not known, removal of this minimal quantity of groundwater would not have a noticeable effect on groundwater supply in the region. For comparison, the total groundwater demand in the Santa Cruz Active Management Area in 2000 was 54,100 acre-ft.

During construction of the project, the storage and use of fuel, lubricants, and other fluids during the construction phase of the facilities and access roads could create a potential contamination hazard. Spills

or leaks of hazardous fluids could contaminate groundwater and affect aquifer use. This impact would be minimized or avoided by restricting the location of refueling activities and by requiring immediate clean-up of spills and leaks of hazardous materials. In this manner any potentially contaminating materials would be removed before they could migrate downward to the groundwater. In addition, the generally large depth to groundwater in the project area further limits the potential for groundwater contamination from surface spills. In the event of a spill, TEP would notify the appropriate state (ADEQ) and local officials, and the affected landowner, while initiating emergency response actions.

Oil and diesel fuel would be stored in clearly marked tanks onsite that would be provided with secondary containment structures. Construction equipment would be maintained regularly, and the source of leaks would be identified and repaired. Any soil contaminated by fuel or oil spills would be removed and disposed by a contractor to an approved disposal site. Lubricating oils, acids for equipment cleaning, and concrete curing compounds are potentially hazardous wastes that may be associated with construction activities. These would be placed in containers within secondary containment structures onsite and disposed of at a licensed treatment and/or disposal facility in accordance with local or state regulations and in compliance with manufacturer's recommendations. Paint containers would be tightly sealed to prevent leaks or spills. Excess paint would be disposed of consistent with the manufacturer's recommendations and according to applicable governmental regulations.

4.7.2.2 *Central Corridor*

The groundwater issues described for the Western Corridor also apply to the Central Corridor.

4.7.2.3 *Crossover Corridor*

The groundwater issues described for the Western Corridor also apply to the Crossover Corridor.

4.7.2.4 *No Action Alternative*

Under the No Action Alternative, TEP would not build the proposed transmission line and associated facilities as proposed in this EIS. TEP would generate no additional wastes and the potential for effects on local groundwater would be eliminated. Current trends in groundwater usage and subsidence would continue, as described in Section 3.7.2.